



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

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MEMORANDUM TO: Project Engineers  
Project Design Engineers

FROM: G. R. Perfetti, P.E.  
State Bridge Design Engineer

DATE: February 2, 2004 (Rev. March 4, 2004)

SUBJECT: APPROACH SLABS

Effective as soon as practical, but no later than the July 2004 letting, all bridge approach slabs shall have a minimum length of 25'-0" (7.62m), and a minimum depth of 1'-0" (305mm). In addition, for bridges with a skew angle between 60° and 120°, the roadway edge of the approach slab shall be perpendicular to the centerline (i.e. workline) of the roadway. For all bridges with a skew angle less than or equal to 60°, the roadway edge of the approach slab shall be formed at an angle of 60° to the centerline of the roadway. Similarly, for all bridges with a skew angle greater than or equal to 120° the roadway edge of approach slabs shall be formed at an angle of 120° to the centerline of the roadway.

*On very wide bridges and/or bridges with a heavy skew, one side of approach slab may be excessively long. In these situations, consult with EDS for alternate configurations.*

Accordingly, all reinforcing bars shall be spaced at 6" (150mm) centers, with the following sizes and designations shown on the bill of material:

Bar	Size	Bar	Size
A1	#5	B1	#6
A2	#4	B2	#8

Approach slabs for steel and concrete girder bridges shall be constructed as shown on the Bridge Approach Slab for Rigid Pavement Structure Standards. When the approach roadway is designated flexible pavement, the roadway edge of the approach slab shall be beveled at 45°, with 6" (150mm) on each leg of the bevel (an asphalt overlay will no longer be detailed *except for approach slabs for cored slab bridges*). Construction elevations shall be provided for the left edge, centerline, right edge, and along all crown breaks between the gutter lines.

NCBDS has been updated to run the revised approach slab layout. The program will be modified to generate a reinforcing bar schedule at a later date. In the interim, guidelines for reinforcing steel layout are as follows:

1. Approach Slabs on a Tangent Alignment
  - ◆ 'A' bars shall be perpendicular to the centerline,
  - ◆ 'B' bars shall be parallel to the centerline,
2. Approach Slabs on a Curved Alignment
  - ◆ 'A' bars shall be radial to the centerline, with the 6" (150mm) spacing shown at the centerline,
  - ◆ 'B' bars shall be detailed on the long chord of concentric arcs spaced at 6" (150mm).
3. Development and splice lengths shall be satisfied for all 'A' and 'B' bars.
4. In the top mat, provide one 'G' bar, detailed along the skew, at each edge of the approach slab.
5. Provide additional splayed reinforcement in all acute corners.
6. *The New Jersey barrier rail and barrier rail transition shall begin 12'-0" (3.66m) from the back face of the end bent backwall and shall be supported on the approach slab as shown in Structure Standards BAS3, BAS5, and BAS9 (BAS3SM, BAS5SM, and BAS9SM).*
7. *For bridges detailed with a New Jersey barrier rail, the portion of approach slab supporting the barrier rail shall maintain the same out-to-out dimension as the bridge. The width of the approach slab extending beyond the New Jersey barrier rail shall be stepped in 2 1/2" (65mm) on each side if the bridge has a cast-in-place deck, and 2" (50mm) on each side for cored slab bridges. This is extremely important, as it allows the approach slab to accommodate the guardrail post attachment. This segment of approach shall be detailed with a 4" curb, similar to a shoulder-berm gutter. Note that for bridges detailed with other types of barrier rails (i.e. 3BMR, 2BMR and 1BMR) the width of approach slab is unchanged. For example, a bridge detailed with a 3BMR and a sidewalk would have an approach slab width that aligns with the back face of the sidewalk, and the sidewalk extends for the entire length of approach slab.*

The Design Manual and the Structure Standards will be updated at a later date.

#### GRP/GM

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